Contents of Volume 78

No. 1. JANUARY 1995

THIS MONTH IN THE JOURNAL 1

INVITED EDITORIAL

Invited Editorial on "Effects of hypoxia and hypercapnia on the Hering-Breuer reflex of the conscious newborn rat"
J. Widdicombe 3

ENVIRONMENT

Quartz inactivates α_1-antiproteinase: possible role in mineral dust-induced emphysema
K. Zay, D. Devine, and A. Churg 53

Lung growth in hypobaric normoxia, normobaric hypoxia, and hypobaric hypoxia in growing rats. I. Biochemistry
H. S. Sekhon and W. M. Thurlbeck 124

EXERCISE AND MUSCLE

Dynamic exercise enhances regional cerebral artery mean flow velocity
P. Linkis, L. G. Jorgensen, H. L. Olesen, P. L. Madsen, N. A. Lassen, and N. H. Secher 12

Mechanical load affects growth and maturation of skeletal muscle grafts
K. A. Esser and T. P. White 30

Stability of GLUT-1 and GLUT-4 expression in perfused rat muscle stimulated by insulin and exercise
X. X. Han, A. Handberg, L. N. Petersen, T. Ploug, and H. Galbo 46

Exercise training attenuates the reduction in myocardial GLUT-4 in diabetic rats
J. L. Hall, W. L. Sexton, and W. C. Stanley 76

Hypoxic effects on exercise-induced diaphragmatic fatigue in normal healthy humans
M. A. Babcock, B. D. Johnson, D. F. Pegelow, O. E. Suman, D. Griffin, and J. A. Dempsey 82

Adaptations in muscle metabolism to prolonged voluntary exercise and training
H. J. Green, S. Jones, M. Ball-Burnett, B. Farrance, and D. Ranney 138

Time-dependent glycemic response to exercise in winter and spring in the subarctic
A. Weydahl, P. A. Balto, E. H. Einvik, B. R. Mikkelsen, and R. B. Sothern 198

Rapid tracer lactate influx into canine skeletal muscle
L. B. Gladden, R. E. Crawford, M. J. Webster, and P. W. Watt 205

Influence of muscle glycogen on glycogenolysis and glucose uptake during exercise in humans
M. Hargreaves, G. McConell, and J. Proietto 288

Hypertrophy and proliferation of skeletal muscle fibers from aged quail
J. A. Carson, M. Yamaguchi, and S. E. Alway 293

Effects of exercise intensity on insulin sensitivity in women with non-insulin-dependent diabetes mellitus
B. Braun, M. B. Zimmermann, and N. Kretchmer 300

β-Adrenoceptor blockade and skeletal muscle energy metabolism during endurance exercise
M. A. van Baak, A. de Haan, W. H. M. Saris, E. van Kordelaar, H. Kuipers, and G. J. van der Vusse 307

Effects of strength and endurance training on thigh and leg muscle mass and composition in elderly women
S. Sipilä and H. Suominen 334

Is walking a random walk? Evidence for long-range correlations in stride interval of human gait (**MODELING IN PHYSIOLOGY**)
J. M. Hausdorff, C.-K. Peng, Z. Ladin, J. Y. Wei, and A. L. Goldberger 349

Age dependence of myosin heavy chain transitions induced by creatine depletion in rat skeletal muscle (**RAPID COMMUNICATION**)
G. R. Adams and K. M. Baldwin 368

METABOLISM

Time course for exercise-induced alterations in insulin action and glucose tolerance in middle-aged people
D. S. King, P. J. Baldus, R. L. Sharp, L. D. Kesl, T. L. Feltmeyer, and M. S. Riddle 17

Effect of excess dietary salt on calcium metabolism and bone mineral in a spaceflight rat model
M. Navidi, I. Wolinsky, P. Fung, and S. B. Arnaud 70

IMP metabolism in human skeletal muscle after exhaustive exercise
P. C. Tullson, J. Bangsbo, Y. Hellsten, and E. A. Richter 146

Effect of aging on β_2-adrenergic receptor-stimulated flux of K^+, PO_4, FFA, and glycerol in human forearms
G. A. Ford, W. D. Dachman, T. F. Blaschke, and B. B. Hoffman 172

Basal fat oxidation decreases with aging in women
J. Calles-Escandón, P. J. Arciero, A. W. Gardner, C. Bauman, and E. T. Poehlman 266

CONTROL OF BREATHING, CIRCULATION, AND TEMPERATURE

Effects of hypoxia and hypercapnia on the Hering-Breuer reflex of the conscious newborn rat
T. Matsuoka and J. P. Mortola 5

Bronchomotor responses to hypoxia and hypercapnia in decerebrate cats
S. Iscoe and J. T. Fisher 117

Rat retrotrapezoid nucleus iono- and metabotropic glutamate receptors and the control of breathing
E. E. Nattie and A. Li 153

Ventilatory responses to cooling the ventrolateral medullary surface of awake and anesthetized goats
P. J. Ohtake, H. V. Forster, L. G. Pan, T. F. Lowry, M. J. Korducki, E. A. Aaron, and E. M. Weiss 247

Effects on breathing of ventrolateral medullary cooling in awake goats
H. V. Forster, P. J. Ohtake, L. G. Pan, T. F. Lowry, M. J. Korducki, E. A. Aaron, and A. L. Forster 258

Hypothermic effect of melatonin and nocturnal core body temperature decline are reduced in aged women
A. Cagnacci, R. Soldani, and S. S. C. Yen 314

Predicting heart rate response to various metabolic rates, environments, and clothing
D. Moran, Y. Epstein, A. Laor, A. Vitalis, and Y. Shapiro 318

Hypercapnia during exercise in asthmatic subjects (**LETTERS TO THE EDITOR**)
A. D. D'Urzo; H. V. Forster 372

CELLULAR ASPECTS OF LUNG FUNCTION

Role of reactive O_2 in phagocyte-induced hypermetabolism and pulmonary injury
A. A. Vlessis, D. Bartos, P. Muller, and D. D. Trunkey 112

Refractory ceramic fibers activate alveolar macrophage eicosanoid and cytokine release
G. D. Leikauf, S. P. Fink, M. L. Miller, J. E. Lockey, and K. E. Driscoll 164

Protective effect of mepacrine on hypoxia-reoxygenation-induced acute lung injury in rats
C.-Y. Shen, D. Wang, M.-L. Chang, and K. Hsu 225

Structural and functional characteristics of peripheral pulmonary parenchyma in golden hamsters
M. Sata, K. Takahashi, S. Sato, and H. Tomoike 239

Unidirectional sodium and potassium flux in myogenic L6 cells: mechanisms and volume-dependent regulation
C. K. Sen, O. Hänninen, and S. N. Orlov 272

SYSTEMIC CIRCULATION AND FLUID BALANCE

Responses of rat mesenteric arteries to norepinephrine during exposure to heat stress and acidosis
A. J. Ryan and C. V. Gisolfi 38

Arterial and arteriolar contributions to skeletal muscle functional hyperemia in spontaneously hypertensive rats
J. M. Lash 93

Role of angiotensin II in hemodynamic responses to dynamic exercise in miniswine
C. L. Stebbins and J. D. Symons 185

Effects of methysergide administration on edema formation at the site of scald
J. J. Ferrara, E. W. Franklin, E. U. Choe, H. L. Lippton, A. L. Hyman, and L. M. Flint 191

Heart rate and blood pressure variabilities during graded head-up tilt
S. Mukai and J. Hayano 212

Relationship between atrial natriuretic peptide and plasma volume during graded exercise with water immersion
K. Nagashima, H. Nose, T. Yoshida, T. Kawabata, Y. Oda, A. Yorimoto, O. Uemura, and T. Morimoto 217

Measurement of intestinal vascular capacitance in dogs: an application of blood pool scintigraphy
N. W. Scott-Douglas, D. E. Manyari, O. A. Smiseth, V. J. B. Robinson, S. Y. Wang, E. R. Smith, and J. V. Tyberg 232

GAS EXCHANGE, MECHANICS, AND AIRWAYS

Model for a pump that drives circulation of pleural fluid
J. P. Butler, J. Huang, S. H. Loring, S. J. Lai-Fook, P. M. Wang, and T. A. Wilson 23

Excess oxygen delivery during muscle contractions in spontaneously hypertensive rats
J. M. Lash and H. G. Bohlen 101

Developmental changes in chest wall compliance in infancy and early childhood
C. Papastamelos, H. B. Panitch, S. E. England, and J. L. Allen 179

How mode of stimulus affects the relative contribution of elastance and hysteresivity to changes in lung tissue resistance
F. G. Salerno, A. Moretto, M. Dallaire, and M. S. Ludwig 282

Characterization of a density-corrected ultrasonic pneumotachometer for horses (SPECIAL COMMUNICATION)
R. E. Beadle, A. J. Guthrie, and A. H. Kou 359

PULMONARY CIRCULATION AND LUNG FLUID BALANCE

Exhaled nitric oxide in isolated pig lungs
G. Cremona, T. Higenbottam, M. Takao, L. Hall, and E. A. Bower 59

BW-755C diminishes smoke-induced pulmonary edema
C. A. Hales, S. Musto, W. G. Hutchison, and E. Mahoney 64

Myocardial edema, left ventricular function, and pulmonary hypertension
K. L. Davis, U. Mehlhorn, G. A. Laine, and S. J. Allen 132

Human pulmonary vascular and venous compliances are reduced before and during left-sided heart failure
S. Hirakawa, T. Suzuki, K. Gotoh, H. Ito, T. Tanaka, Y. Ohsumi, Y. Yagi, Y. Terashima, H. Fujiwara, K. Nagashima, T. Sawa, and T. Tsukamoto 323

Inhaled nitric oxide does not alter the longitudinal distribution of pulmonary vascular resistance
D. M. Lindeborg, B. P. Kavanagh, K. Van Meurs, and R. G. Pearl 341

NO. 2. FEBRUARY 1995

THIS MONTH IN THE JOURNAL 373

INVITED EDITORIAL

Invited Editorial on "Diuretic effect of acute hypoxia in humans: relationship to hypoxic ventilatory responsiveness and renal hormones"
A. Honig 376

ENVIRONMENT

Effect of digital nerve blockade on heat-induced vasoconstriction in the human finger (RAPID COMMUNICATION)
S. Sakurada, O. Shido, K. Yamamoto, N. Sugimoto, T. Kobayashi, and T. Nagasaka 746

EXERCISE AND MUSCLE

Isotopic determination of glycolytic flux during intense exercise in humans
B. D. Williams, I. Plag, J. Troup, and R. R. Wolfe 483

Diaphragmatic failure during group B streptococcal sepsis in piglets: the role of thromboxane A_2
T. D. Murphy, R. L. Gibson, T. A. Standaert, and D. E. Woodrum 491

K^+ balance of the quadriceps muscle during dynamic exercise with and without β-adrenoceptor blockade
L. Gullestad, J. Hallén, and O. M. Sejersted 513

Validation of a noninvasive tension-time index of inspiratory muscles
M. Ramonatxo, P. Boulard, and C. Préfaut 646

Effect of oral creatine supplementation on power output and fatigue during bicycle ergometry
W. H. Cooke, P. W. Grandjean, and W. S. Barnes 670

Bioenergetics and biomechanics of front crawl swimming
C. Capelli, P. Zamparo, A. Cigalotto, M. P. Francescato, R. G. Soule, B. Termin, D. R. Pendergast, and P. E. di Prampero 674

Changes in human skeletal muscle ultrastructure and force production after acute resistance exercise
M. J. Gibala, J. D. MacDougall, M. A. Tarnopolsky, W. T. Stauber, and A. Elorriaga 702

Natural killer cell response to exercise in humans: effect of hypoxia and epidural anesthesia
M. Klokker, M. Kjær, N. H. Secher, B. Hanel, L. Worm, M. Kappel, and B. K. Pedersen 709

Training and muscle ammonia and amino acid metabolism in humans during prolonged exercise
T. E. Graham, L. P. Turcotte, B. Kiens, and E. A. Richter 725

Lactic acidosis as a facilitator of oxyhemoglobin dissociation during exercise (**LETTERS TO THE EDITOR**)
H. S.-H. MacRae, S. C. Dennis; W. W. Stringer, K. Wasserman, and R. Casaburi 758

METABOLISM

Effect of exercise and food restriction on selected markers of the acute phase response in hamsters
C. A. Conn, W. E. Kozak, P. C. J. Tooten, T. A. Niewold, K. T. Borer, and M. J. Kluger 458

Effect of voluntary exercise and food restriction in response to lipopolysaccharide in hamsters
C. A. Conn, W. E. Kozak, P. C. J. Tooten, E. Gruys, K. T. Borer, and M. J. Kluger 466

Effect of fasting and refeeding on acetyl-CoA carboxylase in rat hindlimb muscle
W. W. Winder, P. S. MacLean, J. C. Lucas, J. E. Fernley, and G. E. Trumble 578

Corticosteroid treatment and nutritional deprivation cause a different pattern of atrophy in rat diaphragm
P. N. R. Dekhuijzen, G. Gayan-Ramirez, A. Bisschop, V. De Bock, R. Dom, and M. Decramer 629

The source of nitric oxide in skeletal muscle (**LETTERS TO THE EDITOR**)
S. S. Segal 760

CONTROL OF BREATHING, CIRCULATION, AND TEMPERATURE

Responses of brown adipose tissue activity to unloading in rats
H. Yamashita, Y. Ohira, T. Wakatsuki, M. Yamamoto, T. Kizaki, S. Oh-Ishi, Y. Sato, and H. Ohno 384

Sulfide-induced perturbations of the neuronal mechanisms controlling breathing in rats
J. J. Greer, R. J. Reiffenstein, A. F. Almeida, and J. E. Carter 433

Prostaglandin synthesis blockade by ketoprofen attenuates respiratory and cardiovascular responses to static handgrip
G. A. Fontana, T. Pantaleo, F. Bongianni, F. Cresci, F. Lavorini, C. T. Guerra, and P. Panuccio 449

Effect of inhibition of prostaglandin synthesis on breathing movements and pulmonary blood flow in fetal sheep
R. D. Savich, F. A. Guerra, C.-C. H. Lee, and J. A. Kitterman 531

Ventilatory responses to dead space and CO_2 breathing under inspiratory resistive load
D. A. Sidney and C.-S. Poon 555

Neutral endopeptidase modulates substance P-induced vasodilation in vivo
X.-P. Gao and I. Rubinstein 562

Respiratory sinus arrhythmia in humans: an obligatory role for vagal feedback from the lungs
B. H. Taha, P. M. Simon, J. A. Dempsey, J. B. Skatrud, and C. Iber 638

Ventilation and carbon dioxide exchange in exercising horses: effect of inspired oxygen fraction
N. Pelletier and D. E. Leith 654

Respiratory-related control of palatoglossus and levator palatini muscle activity
D. J. Tangel, W. S. Mezzanotte, and D. P. White 680

Influences of NREM sleep on activity of palatoglossus and levator palatini muscles in normal men
D. J. Tangel, W. S. Mezzanotte, and D. P. White 689

Ventilatory response to isocapnic hyperoxia
H. Becker, O. Polo, S. G. McNamara, M. Berthon-Jones, and C. E. Sullivan 696

Cardiovascular variability and baroreceptor reflex sensitivity over a 14-day tail suspension in rats
S. Fagette, M. Lo, C. Gharib, and G. Gauquelin 717

CELLULAR ASPECTS OF LUNG FUNCTION

Production of PGE_2 by bovine cultured airway smooth muscle cells: regulation by cAMP
T. Barry, F. Delamere, E. Holland, I. Pavord, and A. Knox 623

SYSTEMIC CIRCULATION AND FLUID BALANCE

Diuretic effect of acute hypoxia in humans: relationship to hypoxic ventilatory responsiveness and renal hormones
E. R. Swenson, T. B. Duncan, S. V. Goldberg, G. Ramirez, S. Ahmad, and R. B. Schoene 377

Heart-lung interactions determined by electron beam X-ray CT in laterally recumbent rabbits
L. E. Olson and E. A. Hoffman 417

N^G-nitro-L-arginine and phenylephrine have similar effects on the vascular waterfall in the canine hindlimb
I. Shrier and S. Magder 478

Evaluation of a transit-time system for the chronic measurement of blood flow in conscious sheep
J. A. Bednarik and C. N. May 524

Investigation of hormonal effects during 10-h head-down tilt on heart rate and blood pressure variability
R. L. Hughson, A. Maillet, G. Gauquelin, P. Arbeille, Y. Yamamoto, and C. Gharib 583

Multifrequency bioelectrical impedance fails to quantify sequestration of abdominal fluid (SPECIAL COMMUNICATION)
K. Cha, A. G. Hill, J. D. Rounds, and D. W. Wilmore 736

GAS EXCHANGE, MECHANICS, AND AIRWAYS

Dynamic measurement of tracheal diameter in dogs
J. A. Fisher, G. Volgyesi, D. D. Sommer, J. A. Silverman, A. K. Fink, A. A. Robicsek, and L. Z. Sommer 388

Inhibition of neutral endopeptidase increases airway responsiveness to ACh in nonsensitized normal rats
Y. Chiba and M. Misawa 394

Intrapulmonary distribution of alveolar gas exchange during breath-hold diving in humans
M. H. Linér and D. Linnarsson 410

SP-induced contraction of airway smooth muscle in normal and allergen-sensitized rabbits: mechanism of action
G. N. Colasurdo, J. E. Loader, J. P. Graves, and G. L. Larsen 428

Thyroid cartilage movements during breathing
T. C. Amis, A. Brancatisano, and A. Tully 441

Effect of transpulmonary pressure on airway closure in immature and mature rabbits
R. S. Tepper, S. J. Gunst, C. M. Doerschuk, X. Shen, and W. Bray 505

Endogenous nitric oxide influences acetylcholine-induced bronchovascular dilation in sheep
F. Sasaki, P. Paré, D. Ernest, T. Bai, L. Verburgt, R. March, and E. Baile 539

Intra-airway CO_2 distribution during airway insufflation in ventilatory failure
D. M. Eckmann and N. Gavriely 546

Ventilatory inhomogeneity determined from multiple-breath washouts during sustained microgravity on Spacelab SLS-1
G. K. Prisk, H. J. B. Guy, A. R. Elliott, M. Paiva, and J. B. West 597

Determinants of airway smooth muscle shortening in excised canine lobes
M. Okazawa, S. Vedal, L. Verburgt, R. K. Lambert, and P. D. Paré 608

Antiasthmatic effects of a leukotriene biosynthesis inhibitor (MK-0591) in allergic dogs
A. B. Becker, C. Black, M. K. Lilley, K. Bajwa, A. W. Ford-Hutchinson, F. E. R. Simons, and P. Tagari 615

Ventilation distribution and regional lung impedance during partial unilateral bronchial obstruction
B. A. Simon, K. Tsuzaki, and J. G. Venegas 663

Quantifying the potential of infant bedding to limit CO_2 dispersal and factors affecting rebreathing in bedding (**SPECIAL COMMUNICATION**)
J. S. Kemp and B. T. Thach 740

Interaction of exogenous and endogenous surfactant: spreading-rate effects (**RAPID COMMUNICATION**)
J. B. Grotberg, D. Halpern, and O. E. Jensen 750

Effect of gravity on respiratory system: Is it inspiratory or expiratory? (**LETTERS TO THE EDITOR**)
M. Estenne and M. Paiva 757

PULMONARY CIRCULATION AND LUNG FLUID BALANCE

Contribution of pulmonary versus systemic perfusion of airway smooth muscle
E. M. Wagner and W. A. Mitzner 403

Effect of blood and albumin on pulmonary hypertension and edema in perfused rabbit lungs
S. A. Kraft, S. Fujishima, G. P. McGuire, J. S. Thompson, T. A. Raffin, and R. G. Pearl 499

Effect of fluoride on cardiopulmonary function and release of eicosanoids in pigs
J. R. Dodam and N. C. Olson 569

NO. 3. MARCH 1995

THIS MONTH IN THE JOURNAL 761

INVITED EDITORIAL

Invited Editorial on "Effect of RBC shape and deformability on pulmonary O_2 diffusing capacity and resistance to flow in rabbit lungs"
I. H. Sarelius 763

ENVIRONMENT

Influence of spaceflight on the production of interleukin-3 and interleukin-6 by rat spleen and thymus cells
E. S. Miller, D. A. Koebel, and G. Sonnenfeld 810

Hyperpnea with dry air causes time-dependent alterations in mucosal morphology and bronchovascular permeability
C. Omori, B. H. Schofield, W. Mitzner, and A. N. Freed 1043

Ozone toxicity in the rat. I. Effect of changes in ambient temperature on extrapulmonary physiological parameters
W. P. Watkinson, M. J. Wiester, and J. W. Highfill 1108

Effects of high pressures of various gas mixtures on rat striatal dopamine detected in vivo by voltammetry
J.-C. Rostain and C. Forni 1179

Multiparametric monitoring of the awake brain exposed to carbon monoxide
A. Mayevsky, S. Meilin, G. G. Rogatsky, N. Zarchin, and S. R. Thom 1188

EXERCISE AND MUSCLE

K^+ and Lac^- distribution in humans during and after high-intensity exercise: role in muscle fatigue attenuation? (**INVITED REVIEW**)
M. I. Lindinger, R. S. McKelvie, and G. J. F. Heigenhauser 765

Relationship between MRI relaxation time and muscle fiber composition
J. A. Houmard, R. Smith, and G. L. Jendrasiak 807

Influence of isometric loading on biceps EMG dynamics as assessed by linear and nonlinear tools
C. L. Webber, Jr., M. A. Schmidt, and J. M. Walsh 814

Skeletal muscle characteristics among distance runners: a 20-yr follow-up study
S. W. Trappe, D. L. Costill, W. J. Fink, and D. R. Pearson 823

Short-term immobilization has a minimal effect on the strength and fatigability of a human hand muscle
A. J. Fuglevand, M. Bilodeau, and R. M. Enoka 847

Impact of age on the cardiovascular response to dynamic upright exercise in healthy men and women
J. L. Fleg, F. O'Connor, G. Gerstenblith, L. C. Becker, J. Clulow, S. P. Schulman, and E. G. Lakatta 890

Reduced motor unit activation of muscle spindles and tendon organs in the immobilized cat hindlimb
M. A. Nordstrom, R. M. Enoka, R. M. Reinking, R. C. Callister, and D. G. Stuart 901

Performance and excitability of *mdx* mouse muscle at 2, 5, and 13 wk of age
M. Rezvani, E. Cafarelli, and D. A. Hood 961

Compatibility of high-intensity strength and endurance training on hormonal and skeletal muscle adaptations
W. J. Kraemer, J. F. Patton, S. E. Gordon, E. A. Harman, M. R. Deschenes, K. Reynolds, R. U. Newton, N. T. Triplett, and J. E. Dziados 976

Alterations in intramuscular connective tissue after limb casting affect contraction-induced muscle injury
T. K. Lapier, H. W. Burton, R. Almon, and F. Cerny 1065

Structure of the latissimus dorsi muscle and respiratory function
M. Orozco-Levi, J. Gea, J. Sauleda, J. M. Corominas, J. Minguella, X. Aran, and J. M. Broquetas 1132

Glucose kinetics during high-intensity exercise in endurance-trained and untrained humans (**RAPID COMMUNICATION**)
A. R. Coggan, C. A. Raguso, B. D. Williams, L. S. Sidossis, and A. Gastaldelli 1203

METABOLISM

Sympathetic nervous system activity, body fatness, and body fat distribution in younger and older males
E. T. Poehlman, A. W. Gardner, M. I. Goran, P. J. Arciero, M. J. Toth, P. A. Ades, and J. Calles-Escandon 802

Metabolic, catecholamine, and exercise performance responses to various doses of caffeine
T. E. Graham and L. L. Spriet 867

CONTROL OF BREATHING, CIRCULATION, AND TEMPERATURE

Electrochemical detection of rapid DA release kinetics during hypoxia in perfused-superfused cat CB
D. G. Buerk, S. Lahiri, D. Chugh, and A. Mokashi 830

Activity of respiratory neurons during hypoxia in the chemodenervated cat
S. J. England, J. E. Melton, M. A. Douse, and J. Duffin 856

Sympathetic nerve responses to hyperthermia in the anesthetized rat
M. J. Kenney, C. C. Barney, T. Hirai, and C. V. Gisolfi 881

Skin of the dorsal aspect of human hands and fingers possesses an active vasodilator system
J. M. Johnson, P. E. Pérgola, F. K. Liao, D. L. Kellogg, Jr., and C. G. Crandall 948

Estimation of dynamic chemoresponsiveness in wakefulness and non-rapid-eye-movement sleep
M. C. K. Khoo, F. Yang, J. J. W. Shin, and P. R. Westbrook 1052

Chamber for controlling end-tidal gas tensions over sustained periods in humans
L. S. G. E. Howard, R. A. Barson, B. P. A. Howse, T. R. McGill, M. E. McIntyre, D. F. O'Connor, and P. A. Robbins 1088

Ventilatory response to 8 h of isocapnic and poikilocapnic hypoxia in humans
L. S. G. E. Howard and P. A. Robbins 1092

Alterations in respiratory control during 8 h of isocapnic and poikilocapnic hypoxia in humans
L. S. G. E. Howard and P. A. Robbins 1098

Pulmonary venous congestion augments respiratory motoneuronal responses to cigarette smoke in rabbit
A. C. Bonham, K. Ravi, C. G. Wilson, Z. Zhang, and C. T. Kappagoda 1145

CELLULAR ASPECTS OF LUNG FUNCTION

Exogenous surfactant function in very preterm lambs with and without fetal corticosteroid treatment
C.-M. Chen, M. Ikegami, T. Ueda, D. H. Polk, and A. H. Jobe 955

Adenosine A_2 receptors reverse ischemia-reperfusion lung injury independent of β-receptors
P. L. Khimenko, T. M. Moore, L. W. Hill, P. S. Wilson, S. Coleman, A. Rizzo, and A. E. Taylor 990

Acute lung injury in endotoxemic pigs: role of leukotriene B_4
T. J. VanderMeer, M. J. Menconi, B. P. O'Sullivan, V. A. Larkin, H. Wang, M. Sofia, and M. P. Fink 1121

A method for measuring Cl efflux from dispersed cells of airway epithelium (SPECIAL COMMUNICATION)
T. Ohrui, B.-Q. Shen, R. J. Mrsny, and J. H. Widdicombe 1197

SYSTEMIC CIRCULATION AND FLUID BALANCE

Effects of endotoxin on isolated porcine liver: pressure-flow analysis
N. Brienza, T. Ayuse, J.-P. Revelly, C. P. O'Donnell, and J. L. Robotham 784

Metabolic and thermal adaptations from endurance training in hot or cold water
A. J. Young, M. N. Sawka, L. Levine, P. W. Burgoon, W. A. Latzka, R. R. Gonzalez, and K. B. Pandolf 793

The effects of rM-CSF and rIL-6 therapy on immunosuppressed antiorthostatically suspended mice
J. W. Armstrong, K. Kirby-Dobbels, and S. K. Chapes 968

Catecholaminergic effects of prolonged head-down bed rest
D. S. Goldstein, J. Vernikos, C. Holmes, and V. A. Convertino 1023

Fluid changes during pregnancy: use of bioimpedance spectroscopy
M. D. Van Loan, L. E. Kopp, J. C. King, W. W. Wong, and P. L. Mayclin 1037

Exercise training alters the Ca^{2+} and contractile responses of coronary arteries to endothelin
D. K. Bowles, M. H. Laughlin, and M. Sturek 1079

GAS EXCHANGE, MECHANICS, AND AIRWAYS

Fractal analysis of surfactant deposition in rabbit lungs
N. Gilliard, D. Pappert, and R. G. Spragg 862

Changes in regional lung impedance after intravenous histamine bolus in dogs: effects of lung volume
Z. Balassy, M. Mishima, and J. H. T. Bates 875

Role of neutral endopeptidase in bronchial hyperresponsiveness to bradykinin induced by IL-1β
H. Tsukagoshi, J. Sun, O. Kwon, P. J. Barnes, and K. F. Chung 921

Gas density does not affect pulmonary acoustic transmission in normal men
M. Mahagnah and N. Gavriely 928

T model partition of lung and respiratory system impedances
M. Rotger, R. Farré, R. Peslin, and D. Navajas 938

Effects of increased $+G_z$ on chest wall mechanics in humans
M. Estenne, A. Van Muylem, W. Kinnear, M. Gorini, V. Ninane, L. A. Engel, and M. Paiva 997

Ozone-induced airway hyperresponsiveness: role of superoxide anions, NEP, and BK receptors
H. Tsukagoshi, E.-B. Haddad, J. Sun, P. J. Barnes, and K. F. Chung 1015

Diaphragm thickness heterogeneity at functional residual capacity and total lung capacity
J. L. Wait, D. Staworn, and D. C. Poole 1030

Complement activation in divers after repeated air/heliox dives and its possible relevance to DCS
A. Hjelde, K. Bergh, A. O. Brubakk, and O.-J. Iversen 1140

Comments on "Airway reopening pressure in isolated rat lungs" (LETTERS TO THE EDITOR)
S. Hsu, E. T. Naureckas, R. W. Samsel, J. Solway, and D. P. Gaver III 1208

PULMONARY CIRCULATION AND LUNG FLUID BALANCE

Effect of RBC shape and deformability on pulmonary O_2 diffusing capacity and resistance to flow in rabbit lungs
D. C. Betticher, W. H. Reinhart, and J. Geiser 778

Regional pulmonary blood flow during rest, tilt, and exercise in unanesthetized dogs
J. C. Parker, J. L. Ardell, C. R. Hamm, S. A. Barman, and P. J. Coker 838

Flow pulsatility does not increase mean microvascular pressure or filtration in zone 3 rabbit lungs
O. Saito, W. J. E. Lamm, J. Hildebrandt, and R. K. Albert 914

Estimation of the pulmonary capillary transport function in isolated rabbit lungs
S. H. Audi, J. H. Linehan, G. S. Krenz, C. A. Dawson, S. B. Ahlf, and D. L. Roerig 1004

Visualization of airway obstruction in vivo during pulmonary vascular engorgement and edema
R. H. Brown, E. A. Zerhouni, and W. Mitzner 1070

In vivo measurements of pulmonary angiotensin-converting enzyme kinetics. I. Theory and error analysis
J. Markham, T. J. McCarthy, M. J. Welch, and D. P. Schuster 1158

In vivo measurements of pulmonary angiotensin-converting enzyme kinetics. II. Implementation and application
D. P. Schuster, T. J. McCarthy, M. J. Welch, S. Holmberg, P. Sandiford, and J. Markham 1169

NO. 4. APRIL 1995

THIS MONTH IN THE JOURNAL 1211

INVITED EDITORIAL

Invited Editorial on "Modification of conditioned apneas in rats: evidence for cortical involvement"
J. P. Mortola 1213

EXERCISE AND MUSCLE

Prominence of myosin heavy chain hybrid fibers in soleus muscle of spinal cord-transected rats
R. J. Talmadge, R. R. Roy, and V. R. Edgerton 1256

Circulating palmitate uptake and oxidation are not altered by glycogen depletion in contracting skeletal muscle
L. P. Turcotte, P. Hespel, and E. A. Richter 1266

Arms are different from legs: mechanics and energetics of human hand-running
J. W. Glasheen and T. A. McMahon 1280

Contractility and phenotype transitions in serosal thickening of obstructed rabbit bladder
M. Roelofs, A. J. Wein, F. C. Monson, G. Passerini-Glazel, V. E. Koteliansky, S. Sartore, and R. M. Levin 1432

Effect of eccentric exercise on natural killer cell activity
J. Palmø, S. Asp, J. R. Daugaard, E. A. Richter, M. Klokker, and B. K. Pedersen 1442

Comparison of aerobic capacity between racing standardbred horses
G. M. Gauvreau, H. Staempfli, L. J. McCutcheon, S. S. Young, and W. N. McDonell 1447

Effects of cortisone and testosterone on diaphragmatic function and biochemistry in the rabbit
G. T. Ferguson 1459

Pressure-induced regulation of myosin expression in rodent heart
F. Haddad, P. W. Bodell, and K. M. Baldwin 1489

Caffeine decreases malonyl-CoA in isolated perfused skeletal muscle of rats
P. S. Maclean and W. W. Winder 1496

Maximal accumulated oxygen deficit in Thoroughbred horses
M. D. Eaton, D. L. Evans, D. R. Hodgson, and R. J. Rose 1564

Modeling road-cycling performance (**MODELING IN PHYSIOLOGY**)
T. S. Olds, K. I. Norton, E. L. A. Lowe, S. Olive, F. Reay, and S. Ly 1596

METABOLISM

Daily spontaneous running alters behavioral and neurochemical indexes of nigrostriatal function
D. E. Dluzen, B. Liu, C.-Y. Chen, and S. E. DiCarlo 1219

Plasma glucose turnover during cold stress in humans
A. L. Vallerand, J. Zamecnik, and I. Jacobs 1296

Carbohydrate loading and metabolism during exercise in men and women
M. A. Tarnopolsky, S. A. Atkinson, S. M. Phillips, and J. D. MacDougall 1360

Reduction in intra-abdominal adipose tissue after strength training in older women
M. S. Treuth, G. R. Hunter, T. Kekes-Szabo, R. L. Weinsier, M. I. Goran, and L. Berland 1425

Activity-wheel running attenuates suppression of natural killer cell activity after footshock
R. K. Dishman, J. M. Warren, S. D. Youngstedt, H. Yoo, B. N. Bunnell, E. H. Mougey, J. L. Meyerhoff, L. Jaso-Friedmann, and D. L. Evans 1547

CONTROL OF BREATHING, CIRCULATION, AND TEMPERATURE

Modification of conditioned apneas in rats: evidence for cortical involvement
A. J. Thomas, L. Friedman, C. N. MacKenzie, and K. P. Strohl 1215

Dopaminergic influence on the ventilatory response to sustained hypoxia in the cat
W. Long and N. R. Anthonisen 1250

Instantaneous heart rate increase with dynamic exercise: central command and muscle-heart reflex contributions
J. W. Williamson, A. C. L. Nóbrega, P. K. Winchester, S. Zim, and J. H. Mitchell 1273

Changes in total pulmonary resistance and P_{CO_2} between wakefulness and sleep in normal human subjects
M. J. Morrell, H. R. Harty, L. Adams, and A. Guz 1339

Ventilatory responses to repeated short hypercapnic challenges
D. Gozal, J. H. Ben-Ari, R. M. Harper, and T. G. Keens 1374

Exposing young guinea pigs to sidestream tobacco smoke decreases rapidly adapting receptor responsiveness
A. C. Bonham, C. T. Kappagoda, K. S. Kott, and J. P. Joad 1412

Effect of induced transient arousal on obstructive apnea duration
R. C. Basner, E. Önal, D. W. Carley, E. J. Stepanski, and M. Lopata 1469

Prostaglandin E_2 decreases fetal breathing movements, but not pulmonary blood flow, in fetal sheep
R. D. Savich, F. A. Guerra, C.-C. H. Lee, and J. A. Kitterman 1477

Stability of evoked parasternal intercostal muscle electromyogram at increased end-expiratory lung volume
J. D. Road, S. Osborne, and A. Cairns 1485

Role of vagal feedback from the lung in hypoxic-induced tachycardia in humans
P. M. Simon, B. H. Taha, J. A. Dempsey, J. B. Skatrud, and C. Iber 1522

Hering-Breuer reflex and respiratory rate: a biased association
L. Gagliardi and F. Rusconi 1575

CELLULAR ASPECTS OF LUNG FUNCTION

HOCl effects on tracheal epithelium: conductance and permeability measurements
Y. Guo, L. A. Schneider, and O. D. Wangensteen 1330

IL-1β and IL-6 induce hyperplasia and hypertrophy of cultured guinea pig airway smooth muscle cells
S. De, E. T. Zelazny, J. F. Souhrada, and M. Souhrada 1555

SYSTEMIC CIRCULATION AND FLUID BALANCE

Diaphragmatic microcirculation measured by laser-Doppler flowmetry in the rat
H.-Y. Chang, C.-R. Chen, and S. N. A. Hussain 1225

Exercise-induced cardiac hypertrophy is associated with an increased myocardial compliance
A. J. Woodiwiss and G. R. Norton 1303

Role of nitric oxide in porcine liver circulation under normal and endotoxemic conditions
T. Ayuse, N. Brienza, J. P. Revelly, J. K. Boitnott, and J. L. Robotham 1319

Effects of flow, perfusion pressure, and oxygen consumption on cardiac capillary exchange
D. F. Cousineau, C. A. Goresky, C. P. Rose, A. Simard, and A. J. Schwab 1350

Plasma volume with alternating tilting: effect of fluid ingestion
H. G. Hinghofer-Szalkay, G. Sauseng-Fellegger, and J. E. Greenleaf 1369

Effect of recurrent episodic hypocapnic, eucapnic, and hypercapnic hypoxia on systemic blood pressure
E. C. Fletcher, G. Bao, and C. C. Miller III 1516

Aortic-cardiac reflex during dynamic exercise
X. Shi, J. T. Potts, P. B. Raven, and B. H. Foresman 1569

Mechanisms of myocardial hypercarbic acidosis during cardiac arrest
B. A. Johnson, M. H. Weil, W. Tang, M. Noc, D. McKee, and D. McCandless 1579

Cardiac output during exercise measured by acetylene rebreathing, thermodilution, and Fick techniques (**SPECIAL COMMUNICATION**)
C. C. W. Hsia, L. F. Herazo, M. Ramanathan, and R. L. Johnson, Jr. 1612

Noninvasive measurement of forearm oxygen consumption by near-infrared spectroscopy (**LETTERS TO THE EDITOR**)
B. Chen, and D. W. Amory; R. A. De Blasi, and M. Ferrari 1617

GAS EXCHANGE, MECHANICS, AND AIRWAYS

Substance P-induced histamine release in tracheally perfused guinea pig lungs
C. M. Lilly, A. E. Hall, I. W. Rodger, L. Kobzik, K. J. Haley, and J. M. Drazen 1234

Partitioning of pulmonary function in rabbits during cholinergic stimulation
S. D. Fuller and A. N. Freed 1242

Acetazolamide slows $\dot{V}A/\dot{Q}$ matching after changes in regional blood flow
E. R. Swenson, M. M. Graham, and M. P. Hlastala 1312

Autonomic regulation of tissue resistance in the guinea pig lung
E. P. Ingenito, L. Mark, C. Lilly, and B. Davison 1382

Leukotriene B_4 formation: human neutrophil-airway epithelial cell interactions
S. Zhou, J. M. Stark, and G. D. Leikauf 1396

Persistent small-airways dysfunction after exposure to hyperoxia
E. Thorsen and B. K. Kambestad 1421

Influence of mixed venous P_{O_2} and inspired O_2 fraction on intrapulmonary shunt in patients with severe ARDS
R. Rossaint, S.-M. Hahn, D. Pappert, K. J. Falke, and P. Radermacher 1531

Pathophysiological response of bovine diaphragm function to gastric distension
D. Desmecht, A. Linden, and P. Lekeux 1537

Aerosol deposition and dispersion characterize lung injury in a canine model of emphysema
F. S. Rosenthal 1585

Incorrect calculation of breath-by-breath gas exchange following rejected breaths (**LETTERS TO THE EDITOR**)
J. Pórszász and M. Riley 1618

PULMONARY CIRCULATION AND LUNG FLUID BALANCE

Prolonged pulmonary vasodilator action of inhaled nitric oxide by Zaprinast in awake lambs
F. Ichinose, C. Adrie, W. E. Hurford, and W. M. Zapol 1288

Measurement of the pulmonary vascular granulocyte pool
W. Y. Ussov, A. M. Peters, D. M. Glass, R. D. Gunasekera, and J. M. B. Hughes 1388

Effect of catecholamines on pulmonary circulation at elevated vascular tone
S. A. Barman 1452

Muscarinic agonists and antagonists cause vasodilation in isolated rat lung
P. S. Wilson, P. L. Khimenko, J. W. Barnard, T. M. Moore, and A. E. Taylor 1404

On-line measurement of nitric oxide generation in buffer-perfused rabbit lungs
R. Spriestersbach, F. Grimminger, N. Weissmann, D. Walmrath, and W. Seeger 1502

Nitric oxide generation and hypoxic vasoconstriction in buffer-perfused rabbit lungs
F. Grimminger, R. Spriestersbach, N. Weissmann, D. Walmrath, and W. Seeger 1509

ANNOUNCEMENTS 1620

NO. 5. MAY 1995

THIS MONTH IN THE JOURNAL 1621

INVITED EDITORIAL

Invited Editorial on "O_2 dependence of pregnenolone and aldosterone synthesis in mitochondria from bovine zona glomerulosa cells"
H. Acker 1623

ENVIRONMENT

Attenuation of hyperoxic lung injury by the 21-aminosteroid U-74389G
S. Tasaka, A. Ishizaka, T. Urano, K. Sayama, F. Sakamaki, H. Nakamura, T. Terashima, Y. Waki, K. Soejima, S. Fujishima, and M. Kanazawa 1635

Pulmonary function alterations after 3 wk of exposure to hypobaria and/or hypoxia in growing rats
H. S. Sekhon, J. L. Wright, and W. M. Thurlbeck 1787

Maximal exercise performance in chronic hypoxia and acute normoxia in high-altitude natives
R. Favier, H. Spielvogel, D. Desplanches, G. Ferretti, B. Kayser, and H. Hoppeler 1868

EXERCISE AND MUSCLE

Circadian rhythm of cortisol confounds cortisol responses to exercise: implications for future research
J. R. Thuma, R. Gilders, M. Verdun, and A. B. Loucks 1657

Metabolic end products inhibit sarcoplasmic reticulum Ca^{2+} release and [^{3}H]ryanodine binding
T. G. Favero, A. C. Zable, M. B. Bowman, A. Thompson, and J. J. Abramson 1665

Adaptations of rat lateral gastrocnemius motor units in response to voluntary running
K. L. Seburn and P. Gardiner 1673

Contribution of diaphragmatic power output to exercise-induced diaphragm fatigue
M. A. Babcock, D. F. Pegelow, S. R. McClaran, O. E. Suman, and J. A. Dempsey 1710

Human fiber size and enzymatic properties after 5 and 11 days of spaceflight
V. R. Edgerton, M.-Y. Zhou, Y. Ohira, H. Klitgaard, B. Jiang, G. Bell, B. Harris, B. Saltin, P. D. Gollnick, R. R. Roy, M. K. Day, and M. Greenisen 1733

Myosin heavy chain isoforms of human muscle after short-term spaceflight
M.-Y. Zhou, H. Klitgaard, B. Saltin, R. R. Roy, V. R. Edgerton, and P. D. Gollnick 1740

Effects of acute and chronic exercise on skeletal muscle glucose transport in aged rats
J. F. Youngren and R. J. Barnard 1750

Increased prostacyclin production during exercise in untrained and trained men: effect of low-dose aspirin
R. H. Böger, S. M. Bode-Böger, E. P. Schröder, D. Tsikas, and J. C. Frölich 1832

Gradient of fatty acids from blood plasma to skeletal muscle in dogs
G. J. van der Vusse and T. H. M. Roemen 1839

Skeletal muscle phosphofructokinase activity examined under physiological conditions in vitro
S. J. Peters and L. L. Spriet 1853

Physiological determinants of 10-km performance in highly trained female runners of different ages
S. L. Evans, K. P. Davy, E. T. Stevenson, and D. R. Seals 1931

Plasticity of myonuclear number in hypertrophied and atrophied mammalian skeletal muscle fibers
D. L. Allen, S. R. Monke, R. J. Talmadge, R. R. Roy, and V. R. Edgerton 1969

Pressure-volume relationships in equine midcarpal joint
J. Hardy, A. L. Bertone, and W. W. Muir 1977

METABOLISM

O_2 dependence of pregnenolone and aldosterone synthesis in mitochondria from bovine zona glomerulosa cells
H. Raff and B. Jankowski 1625

Effect of hepatic vagotomy on plasma catecholamines during exercise-induced hypoglycemia
M. G. Latour, S. Cardin, R. Hélie, N. Yamaguchi, and J.-M. Lavoie 1629

CONTROL OF BREATHING, CIRCULATION, AND TEMPERATURE

Respiratory and cardiovascular responses to increased and decreased carotid sinus pressure in sleeping dogs
K. W. Saupe, C. A. Smith, K. S. Henderson, and J. A. Dempsey 1688

Effects of raising carotid sinus pressure on upper airway resistance and EEG frequency in sleeping dogs
K. W. Saupe, C. A. Smith, K. S. Henderson, and J. A. Dempsey 1699

Thermoregulatory responses of rats acclimated to heat given daily at a fixed time
N. Sugimoto, O. Shido, and S. Sakurada 1720

Role of C fibers in physiological responses to ozone in rats
M. Jimba, W. A. Skornik, C. R. Killingsworth, N. C. Long, J. D. Brain, and S. A. Shore 1757

Effects of oxygenation and hypercapnia on diaphragmatic function and central drive during respiratory failure
G. T. Ferguson 1764

Anaerobic threshold and respiratory compensation in pregnant women
F. K. Lotgering, P. C. Struijk, M. B. Van Doorn, W. E. M. Spinnewijn, and H. C. S. Wallenburg 1772

Pharyngeal narrowing/occlusion during central sleep apnea
M. S. Badr, F. Toiber, J. B. Skatrud, and J. Dempsey 1806

Differential effect of ventrolateral medullary cooling on respiratory muscles of goats
H. V. Forster, T. F. Lowry, P. J. Ohtake, L. G. Pan, M. J. Korducki, and A. L. Forster 1859

Effect of hypoxia on intracellular pH of glomus cells cultured from cat and rat carotid bodies
A. Mokashi, D. Ray, F. Botre, M. Katayama, S. Osanai, and S. Lahiri 1875

Immunohistochemical demonstration of four subunits of neutrophil NAD(P)H oxidase in type I cells of carotid body
W. Kummer and H. Acker 1904

Control of expiratory time in conscious humans
G. F. Rafferty, J. Evans, and W. N. Gardner 1910

Mechanisms of airway protection after pharyngeal fluid infusion in healthy sleeping piglets
M. Page, H. E. Jeffery, V. Marks, E. J. Post, and A. K. W. Wood 1942

Activity of costal and crural diaphragm during progressive hypoxia or hypercapnia
P. A. Easton, T. Abe, J. Smith, J.-W. Fitting, A. Guerraty, and A. E. Grassino 1985

CELLULAR ASPECTS OF LUNG FUNCTION

Artificial surfactant attenuates hyperoxic lung injury in primates. I. Physiology and biochemistry
Y.-C. T. Huang, A. C. Sane, S. G. Simonson, T. A. Fawcett, R. E. Moon, P. J. Fracica, M. G. Menache, C. A. Piantadosi, and S. L. Young 1816

Artificial surfactant attenuates hyperoxic lung injury in primates. II. Morphometric analysis
C. A. Piantadosi, P. J. Fracica, F. G. Duhaylongsod, Y.-C. T. Huang, K. E. Welty-Wolf, J. D. Crapo, and S. L. Young 1823

Tracheal epithelial damage alters tracer fluxes and effects of tracheal osmolality in sheep in vivo
U. M. Wells, A. J. Woods, Z. Hanafi, and J. G. Widdicombe 1921

SYSTEMIC CIRCULATION AND FLUID BALANCE

Leukocyte adhesion induced by inhibition of nitric oxide production in skeletal muscle
T. Akimitsu, D. C. Gute, and R. J. Korthuis 1725

Continuous measurement of ATP by ^{31}P-NMR in term human dually perfused placenta in vitro: response to ischemia
A. Malek, R. K. Miller, D. R. Mattison, T. Ceckler, M. Panigel, P. A. Di Sant'Agnese, and L. N. Jessee 1778

Effects of isoproterenol on the cardiovascular system of fetal sheep exposed to long-term high-altitude hypoxemia
M. Kamitomo, T. Ohtsuka, and R. D. Gilbert 1793

Influence of spaceflight, hindlimb suspension, and venous occlusion on α_1-adrenoceptors in rat vena cava
I. Sayet, G. Neuilly, J. Mironneau, and C. Mironneau 1882

GAS EXCHANGE, MECHANICS, AND AIRWAYS

Effect of hypoxia on reflex responses of tracheal submucosal glands
R. Hejal, K. P. Strohl, B. Erokwu, N. S. Cherniack, and M. A. Haxhiu 1651

Sensory nerve- and neuropeptide-mediated relaxation responses in airways of Sprague-Dawley rats
J. L. Szarek, N. L. Stewart, B. Spurlock, and C. Schneider 1679

Interaction of surfactant mixtures with reactive oxygen and nitrogen species
J. Cifuentes, J. Ruiz-Oronoz, C. Myles, B. Nieves, W. A. Carlo, and S. Matalon 1800

Allergen-induced hyperresponsiveness to bradykinin is more pronounced than that to methacholine
A. R. Berman, A. G. Togias, G. Skloot, and D. Proud 1844

Lung tissue and airway impedances during pulmonary edema in normal range of breathing
G. M. Barnas, J. Sprung, R. Kahn, P. A. Delaney, and M. Agarwal 1889

Direct effects of inhaled nitric oxide on canine peripheral airways
K. S. Lindeman, A. Aryana, and C. A. Hirshman 1898

Dilatory effects of upper airway muscle contraction induced by electrical stimulation in awake humans
R. P. Schnall, G. Pillar, S. G. Kelsen, and A. Oliven 1950

Longitudinal effects of aging on lung function at rest and exercise in healthy active fit elderly adults
S. R. McClaran, M. A. Babcock, D. F. Pegelow, W. G. Reddan, and J. A. Dempsey 1957

Effect of lung volume on forced expiratory flows during rapid thoracoabdominal compression in infants (SPECIAL COMMUNICATION)
J. Hammer and C. J. L. Newth 1993

PULMONARY CIRCULATION AND LUNG FLUID BALANCE

Role of EDRF in the cardiopulmonary dysfunction produced by massive sympathetic activation
C. F. Pilati, M. B. Maron, and F. J. Bosso 1642

Site of pulmonary vasodilation by inhaled nitric oxide in the perfused lung
S. Rimar and C. N. Gillis 1745

NO. 6. JUNE 1995

THIS MONTH IN THE JOURNAL 1999

INVITED EDITORIAL

Invited Editorial on "Respiratory-related heart rate variability persists during central apnea in dogs: mechanisms and implications"
J. A. Dempsey 2001

ENVIRONMENT

Cerebral blood flow and systemic hemodynamics during exposure to 2 kPa CO_2-300 kPa O_2 in rats
G. W. Bergø and I. Tyssebotn 2100

Repeated exposure to 5 bar normoxic He-N_2 changes cerebral blood flow distribution in rats
G. W. Bergø and I. Tyssebotn 2109

Susceptibility to high-altitude pulmonary edema in Madison and Hilltop rats. I. Ventilation and fluid balance
G. L. Colice, Y.-J. Lee, J. Chen, H.-K. Du, G. Ramirez, J. Dietz, and L.-C. Ou 2279

Training in hypoxia vs. training in normoxia in high-altitude natives
R. Favier, H. Spielvogel, D. Desplanches, G. Ferretti, B. Kayser, A. Grünenfelder, M. Leuenberger, L. Tüscher, E. Caceres, and H. Hoppeler 2286

EXERCISE AND MUSCLE

Efficacy of drug regimen exceeds electrostimulation in treatment of avian muscular dystrophy
M. S. Hudecki, S. P. Povoski, C. C. Gregorio, J. A. Granchelli, and C. M. Pollina 2014

Oxidative capacity of human muscle fiber types: effects of age and training status
D. N. Proctor, W. E. Sinning, J. M. Walro, G. C. Sieck, and P. W. R. Lemon 2033

Sarcomere length and capillary curvature of rat hindlimb muscles in vivo
M. A. Ledvina and S. S. Segal 2047

Myosin heavy chain composition in young and old rat skeletal muscle: effects of endurance exercise
V. K. Sullivan, S. K. Powers, D. S. Criswell, N. Tumer, J. S. Larochelle, and D. Lowenthal 2115

Norepinephrine release in the rat frontal cortex under treadmill exercise: a study with microdialysis
R. Pagliari and L. Peyrin 2121

Skeletal muscle mitochondrial function studied by kinetic analysis of postexercise phosphocreatine resynthesis
C. H. Thompson, G. J. Kemp, A. L. Sanderson, and G. K. Radda 2131

Energy expenditure and substrate utilization in older women after strength training: 24-h calorimeter results
M. S. Treuth, G. R. Hunter, R. L. Weinsier, and S. H. Kell 2140

Succinate dehydrogenase activity of sexually dimorphic muscles of rats
C. E. Blanco, P. E. Micevych, W.-Z. Zhan, and G. C. Sieck 2147

Exercise causes branched-chain oxoacid dehydrogenase dephosphorylation but not AMP deaminase binding
J. W. E. Rush, D. A. MacLean, E. Hultman, and T. E. Graham 2193

Effect of exercise on lipolytic sensitivity in endurance-trained athletes
S. Klein, E. F. Coyle, and R. R. Wolfe 2201

Oxygen effect on O_2 deficit and $\dot{V}O_2$ kinetics during exercise in obstructive pulmonary disease
P. Palange, P. Galassetti, E. T. Mannix, M. O. Farber, F. Manfredi, P. Serra, and S. Carlone 2228

Metabolic and vascular effects of circulating endothelin-1 during moderately heavy prolonged exercise
G. Ahlborg, E. Weitzberg, and J. Lundberg 2294

Ratios and regressions in body size and function: a commentary
(LETTERS TO THE EDITOR)
J. E. Cotes and J. W. Reed; D. M. Cooper and N. Berman 2328

METABOLISM

Effect of coingestion of fat and protein with carbohydrate feedings on muscle glycogen storage
L. M. Burke, G. R. Collier, S. K. Beasley, P. G. Davis, P. A. Fricker, P. Heeley, K. Walder, and M. Hargreaves 2187

Energy expenditure during antiorthostatic bed rest (simulated microgravity)
R. J. Gretebeck, D. A. Schoeller, E. K. Gibson, and H. W. Lane 2207

Hepatic anion flux during acute endotoxemia
J. A. Kellum, R. Bellomo, D. J. Kramer, and M. R. Pinsky 2212

Modulation of ATP production by oxygen in obstructive lung disease as assessed by ^{31}P-MRS
E. T. Mannix, M. D. Boska, P. Galassetti, G. Burton, F. Manfredi, and M. O. Farber 2218

Effects of hypercapnia on ECoG and oxidative metabolism in neonatal dog brain
H. Yoshioka, H. Miyake, D. S. Smith, B. Chance, T. Sawada, and S. Nioka 2272

CONTROL OF BREATHING, CIRCULATION, AND TEMPERATURE

Respiratory-related heart rate variability persists during central apnea in dogs: mechanisms and implications
R. L. Horner, D. Brooks, L. F. Kozar, K. Gan, and E. A. Phillipson 2003

Role of vagal afferents in the acute ventilatory responses to inhaled wood smoke in rats
Y. R. Kou, C.-Y. Wang, and C. J. Lai 2070

Voluntary control of breathing does not alter vagal modulation of heart rate
A. R. Patwardhan, J. M. Evans, E. N. Bruce, D. L. Eckberg, and C. F. Knapp 2087

Central and reflex neural control of genioglossus in subjects who underwent laryngectomy
J. A. Innes, M. J. Morrell, I. Kobayashi, R. D. Hamilton, and A. Guz 2180

Epithelial modulation of afferent nerve endings: differential effects of amiloride on afferent subtypes
T. K. Ghosh, M. R. Van Scott, and O. P. Mathew 2235

Nitrogen narcosis attenuates shivering thermogenesis
I. B. Mekjavić, S. A. Savić, and O. Eiken 2241

Ovine fetal swallowing response to intracerebroventricular hypertonic saline
M. G. Ross, L. K. Kullama, A. Ogundipe, K. Chan, and M. G. Ervin 2267

Human temperature regulation during subanesthetic levels of nitrous oxide-induced narcosis
S. S. Cheung and I. B. Mekjavić 2301

CELLULAR ASPECTS OF LUNG FUNCTION

State of airway surface liquid on guinea pig trachea
H. Rahmoune and K. L. Shephard 2020

Adhesion molecules contribute to ischemia and reperfusion-induced injury in the isolated rat lung
T. M. Moore, P. Khimenko, W. K. Adkins, M. Miyasaka, and A. E. Taylor 2245

SYSTEMIC CIRCULATION AND FLUID BALANCE

Changes in regional vascular resistance and blood volume after hemorrhage in fed and fasted awake rats
D. N. Darlington, R. O. Jones, L. Marzella, and D. S. Gann 2025

Peroxide-cyclooxygenase interactions in postasphyxial changes in retinal and choroidal hemodynamics
S. Chemtob, P. Hardy, D. Abran, D.-Y. Li, K. Peri, O. Cuzzani, and D. R. Varma 2039

Endothelial barrier resistance in multiple organs after septic and nonseptic challenges in the rat
X. Deng, X. Wang, and R. Andersson 2052

Rat aortic vasoreactivity is altered by old age and hindlimb unloading
M. D. Delp, M. Brown, M. H. Laughlin, and E. M. Hasser 2079

Renal and endocrine responses in humans to isotonic saline infusion during microgravity
P. Norsk, C. Drummer, L. Röcker, F. Strollo, N. J. Christensen, J. Warberg, P. Bie, C. Stadeager, L. B. Johansen, M. Heer, H.-C. Gunga, and R. Gerzer 2253

GAS EXCHANGE, MECHANICS, AND AIRWAYS

Effect of mild hypothermia on the coefficient of oxygen delivery in hypoxemic dogs
S. Ohta, T. Yukioka, T. Wada, Y. Miyagatani, H. Matsuda, and S. Shimazaki 2095

Lung and respiratory impedance at low frequency during mechanical ventilation in rabbits
M. Rotger, R. Peslin, D. Navajas, and R. Farré 2153

A β_2-adrenergic agonist inhibits dry air-induced injury in canine peripheral airways
C. Omori, B. H. Schofield, W. Mitzner, and A. N. Freed 2169

Cigarette smoke-induced bronchoconstriction: cholinergic mechanisms, tachykinins, and cyclooxygenase products
J.-L. Hong, I. W. Rodger, and L.-Y. Lee 2260

PULMONARY CIRCULATION AND LUNG FLUID BALANCE

Role of G proteins in the vasodilator response to endothelin isopeptides in vivo
H. L. Lippton, Q. Hao, O. Erdemli, and A. Hyman 2062

Effects of manganese superoxide dismutase on lung fluid balance after smoke inhalation
T. T. Nguyen, C. S. Cox, Jr., D. N. Herndon, N. A. Biondo, L. D. Traber, P. E. Bush, A. Zöphel, and D. L. Traber 2161

Time-varying pulmonary arterial input impedance via wavelet decomposition
Z. Li, B. J. B. Grant, and B. B. Lieber 2309

Right and left ventricular volumes and function after acute pulmonary hypertension in intact dogs (**SPECIAL COMMUNICATION**)
L. J. Dell'Italia, D. J. Pearce, G. G. Blackwell, H. R. Singleton, S. P. Bishop, and G. M. Pohost 2320

Mechanisms involved in pleural liquid turnover (**LETTERS TO THE EDITOR**)
E. Agostoni and L. Zocchi; D. Negrini, S. T. Ballard, and J. N. Benoit 2329

Subject Index to Volume 78 2331
Author Index to Volume 78 2343